



MANUFACTURING CORPORATION

- Plastics Machining
- Spring Energized Seals
- Rotary Lip Seals

### Material Data Sheet

Material: Semitron® ESd 480      Static Dissipative Polyetheretherketone (PEEK®)

This PEEK based static dissipative material provides a dissipative range of 106 - 109 ohms/sq. Semitron® ESd 480 is very dimensionally stable, making it ideal for critical test fixture applications. Its exceptional chemical resistance makes it well suited for use in wafer handling and other structural applications in wet process tools where static dissipation is important. Like all Quadrant Semitron® ESd materials, Semitron® ESd480 is not subject to dielectric breakdown. The Semitron® Semiconductor Grade products were developed to help designers and users optimize the performance of device manufacturing equipment. In addition to device manufacture, many of these materials are ideal for specific environments where wear-resistance, chemical-resistance and the management of static electricity are required.

Mechanical Properties	Test Method ASTM	Value	Units
Specific Gravity, 73°F	D792	1.47	
Tensile Strength, 73°F	D638	14,500	psi
Tensile Modulus of Elasticity, °F	D638	940,000	psi
Tensile Elongation ( at break), 73°F	D638	1.5	%
Flexural Strength, 73°F	D790	21,000	psi
Flexural Modulus of Elasticity, 73°F	D790	1,000,000	psi
Shear Strength, 73°F	D732		psi
Compressive Strength, 10% Deformation, 73°F	D695	26,500	psi
Compressive Modulus of Elasticity, 73°F	D695	570,000	psi
Hardness, Rockwell, Scale as noted, 73°F	D785	M107 (R122)	
Hardness, Durometer, Shore "D" Scale, 73°F	D2240		
Izod Impact (notched), 73°F	D256 Type A	1	ft-lb/in of notch
Coefficient of Friction (Dry vs. Steel) Dynamic	QTM 55007	0.2	
Limiting PV (with 4:1 safety factor applied)	QTM 55007	17,000	ft.lbs./in. <sup>2</sup> min
Wear Factor "k" x 10 <sup>-10</sup>	QTM 55010		in. <sup>3</sup> -min/ft.lbs.hr
<b>Thermal Properties</b>			
Coefficient of Linear Thermal Expansion (-40°F to 300°F)	E-831 (TMA)	1.7 x 10 <sup>-5</sup>	in/in./°F
Heat Deflection Temperature 264 psi	D648	500	°F
TG-Glass transition (amorphous)	D3418	N/A	°F
Melting Point (Crystalline) peak	D3418	644	°F
Continuous Service Temperature in Air (Max.) (1)		475	°F
Thermal Conductivity	F433		BTU-in/hr-ft <sup>2</sup> -°F
<b>Electrical Properties</b>			
Dielectric Strength, Short Term	D149		Volts/mil
Surface Resistivity	EOS/ESD S11.11		ohm/square
Dielectric Constant, 106 Hz	D150		
Dissipation Factor, 106 Hz	D150		
Flammability @ 3.1 mm (1/8 in.)	UL 94	V-0	
FDA Compliant		No	

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\*The values shown in these and the following charts are typical, average properties. Actual values may differ due to variations in resin formulations and processing methods. These values are obtained from sources believed to be reliable, including the resin manufacturers, converters and other published sources. However, they should not be used for specification or design purposes. Above information provided by Quadrant EPP.